

## Opportunities for Woody Crop Production Using Treated Wastewater in Egypt

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The Nile River provides nearly 97% of Egypt's freshwater supply. Egypt's share of Nile waters is allocated according to international treaty obligations and is fixed at 55.5 billion cubic meters annually. As a result, Egypt will not be able to meet increasing water demand using freshwater from the Nile and has been developing wastewater reuse strategies to meet future demands. The volume of available wastewater is expected to increase from 8 billion cubic meters in 2000 to 14 billion cubic meters in 2017. Since 2004, the United States Agency for International Development Mission in Cairo has promoted strategies for water reuse through its Integrated Water Resources Management Project with Egypt's Ministry of Water Resources and Irrigation. Guidelines for reuse of treated wastewater for agricultural purposes were approved in 2005, which represent the legal foundation for farmers to begin cultivating with irrigated wastewater. The Ministry of Agriculture and Land Reclamation has established 28 man-made forests throughout the country, some of which have been useful for assessing the efficacy of using treated wastewater for afforestation. Currently, a joint USDA Forest Service – Agricultural Research Service technical assistance team has been evaluating the feasibility of scaling up such afforestation efforts throughout Egypt. There are 67,200 hectares available for these production systems. In this presentation, we describe information about: 1) suitable tree species that have been identified based on local soil characteristics, water quality, and quantity of water supply; 2) the benefits and consequences of using these species; 3) recommendations for irrigation based on species and local conditions; 4) strategies to maximize the potential of afforestation with regard to improving water quality, maximizing resource production, increasing biodiversity, and limiting commercial inputs; 5) potential long-term impacts on the natural resource base from afforestation and strategies to mitigate these impacts.

**Keywords:** afforestation, forest products, irrigation management, phytotechnologies, resource production, water quality

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